US Army Corps of Engineers®

"Protect water recharge areas such as wetlands and floodplains" *Omaha Session**

Floodplain management involves keeping some flood prone areas undeveloped to let the river do what it does naturally.

Floodplain Risks and Costs

- Only 20-30% of at-risk buildings are covered by national flood insurance.
- Less than 15% of the more than 20,000 U.S. communities are protected by flood protection measures.
- Urban development in floodplains continues, increasing annually by 2%.
- Most floodplain maps are outdated – by more than 20 years in many communities– and nonexistent in many developing areas.
- Floods cost over $4 billion annually in property losses and emergency assistance.

Return on Investment

- An estimated $706 billion in damages have been prevented through the Nation's investment in flood damage reduction measures. The cumulative cost of constructing and maintaining these projects is about $119 billion, yielding about a six to one return on investment.

Coastal Hazards

- Every year, 1,500 structures and their land could be lost to erosion, costing property owners $530 million.
- Along the east and Gulf Coasts, about $3 trillion in shoreline infrastructure is vulnerable to erosion from flooding and other natural hazards.
- Global warming is likely to increase the frequency of tropical storms
- Since 1980, the population migrating to the coasts has outpaced the total U.S. population growth by 15%.

Flood hazard management strategies discussed

Preventing flood damages in the floodplain was an important participant concern. Many participants noted that despite substantial investment in flood protection measures, floods still cause major damages every year. Several participants stated that focusing funding on flood prevention would save money in avoided damages in the long run.

Flood hazard avoidance practices were a commonly mentioned challenge. A few participants stated this challenge in terms of "managing" floods rather than "controlling" them. One important issue was the need to update flood hazard boundary maps and to identify flood hazards in unmapped areas so that development can be directed outside those areas. Many participants noted that flood-vulnerable development continues to occur in floodplains because land use regulations do not exist due to lack of interest or statutory authority, or are not enforced. Several participants stated that development in the floodplain is often encouraged by government subsidies. Buying out floodplain development was seen as an efficient way to avoid flood hazards. A related issue voiced by a few partic-

** Topics in this paper were identified at 16 Listening Sessions between June and November 2000. The purposes of the Listening Sessions were to start a dialogue and to provide citizens an opportunity to tell us what they believed the Federal role should be in addressing water resources.*

Many said that building in the floodplain is asking for trouble.

Comments from the Listening Sessions

"Shift away from "engineering solutions" toward non-structural/sustainable, restorative, and protective natural resource policies." *Environmental NGO, Dallas Session*

"Development in flood-prone areas needs to stop. Recognize and protect the natural benefits of wetlands and riparian habitat." *Dallas Session*

"Preserve and recognize that floodplains provide for common green space areas, groundwater recharge, and that they improve water quality." *Dallas Session*

"Outline a procedure to avoid continual 'bailouts' of residents that choose to live in the floodplain." *State Government (DNR), Omaha Session*

"Prevent coastal erosion, flooding, and pollution." *Dallas Session*

"Recognize the value of both structural and non structural flood control projects; there is a need for both types of solutions." *Phoenix Session*

"Flood plain maps badly need to be updated." *Phoenix Session*

"Steer development away from flood prone or environmentally sensitive areas." *Sacramento Session*

"Implement a national shoreline policy." *Sacramento Session*

"Consider all benefits (recreation, cultural, etc.) of shoreline protection projects. Not just NED." *Sacramento Session*

"Reduce flooding potential and enhance water quality by decreasing floodplain use and wetland destruction." *Atlanta Session*

ipants was the need to improve flood monitoring and warning systems.

Flood hazard protection issues involved both structural approaches, such as dams and levees, and nonstructural approaches, such as natural or constructed wetlands. Several participants were concerned that flood protection structures were aging and at risk of failure, not being properly maintained due to lack of funding, or improperly designed to protect new construction. A very strong theme among participant responses was the need to reduce reliance on structural flood controls and instead make use of natural flood control processes by protecting and constructing wetlands. However, a few participants felt that nonstructural flood control techniques are ineffective or are being overused. Others noted a need for both types of flood protection, depending on the circumstances. Increased storm runoff due to development was also part of the nonstructural flood control challenge.

The dilemma of how to spend tax dollars on floodplain management: preventative measures or disaster recovery. How many disasters can we afford?

Floodplain management was identified a more important challenge in Omaha, Nebraska; Phoenix, Arizona; and San Francisco, California. The emphasis at the Phoenix session was on updating floodplain maps and creating maps for unmapped areas. Participants at the Omaha session highlighted the need for comprehensive floodplain management including non-structural solutions. At the national listening session in San Diego, participants commented on a broad range of issues, including the need to implement non-structural flood control measures, over-reliance on nonstructural flood control measures, land use regulation in the floodplain, increased Federal funding for structure maintenance and property buyouts, and flood map updating.

Beach and Shoreline Erosion Is Principal Issue

Participants expressed the desire for a national presence in coastal water resource management. Sea levels are rising. Beach and shoreline erosion is threatening the livelihood of national beaches, streams and rivers. Beaches and shorelines were said to be important national interests because they protect vital infrastructure from damage by acting as buffers against storm waves. Some participants also said that beaches and shorelines are important habitats for rare and endangered marine-dependent organisms and that some regions depended on them for tourism and economic well being.

Beach replenishment was considered essential, however, some participants expressed the need for better management to ensure that sedimentation resulting from beach replenishment projects does not cause flooding in other areas.

Americans say the Federal government should:

- Update floodplain maps.
- Use both structural and non-structural means to reduce flood damages.
- Achieve more synergy across agency programs for better floodplain management, prevention, and response.
- Discourage future development in floodplains.
- Promote watershed planning and work for balanced, environmentally sustainable flood solutions.
- Restore, nourish, and monitor beaches.
- Establish national standards – including technical design, economics and research – for coastal shore protection.
- Coordinate coastal restoration and protection among Federal agencies.

Regional Concerns:

Participants at the Chicago listening session said that jetties and seawalls were poorly planned and they caused erosion of the shoreline, streams and rivers. Some participants indicated that computer simulation models have failed to predict what actually happened to the sand supply and to down-drift beaches, i.e. 200 million cubic yards of sand were trapped at jetties on the east coast of Lake Michigan.

At the Anchorage listening session, how to manage a very shallow water table was one of the issues. It was stated that many rural Alaska villages are situated along rivers or coastlines and that erosion as a natural event often threatens infrastructure, homes, airstrips, sewage lagoons, etc. The loss of such structures would mean the loss of economic viability for some communities.

Worburn participants suggested the need to establish a national policy for coastal protection, taking into account such things as shoreline protection, environmental resources, flood and erosion control, recreation, and protection of open space. Participants also wanted to see a balanced representation of stakeholders and policies based on good science and good economics.

Some Atlanta participants would like to see dredge material being used for beach re-nourishment. However, it was suggested that the beneficiaries pay for re-nourishment. According to some participants, dredge material was currently being dumped offshore and it could be put to better use and would also solve the problem of how to dispose of dredge material from channel maintenance.

Comments from the Listening Sessions

"Coastal and riverine erosion and flooding need to contained to protect community infrastructure." *Anchorage Session*

"Develop a more comprehensive approach to flood plain management. Consider tangible and intangible benefits." *Omaha Session*

"Small communities can't meet Corps minimum requirements for maintaining local levees." *Omaha Session*

"Reduce property and archeological damage due to water level fluctuation." *Vancouver Session*

"Use buyouts and other nonstructural approaches." *New Brunswick Session*

Beach erosion devalues prime property. People want a national policy established for coastal protection.

Coastal infrastructure is vulnerable to erosion from storms and other natural disasters.